

## CLAIMS

1. A method of treating animal waste, comprising:
  - removing animal waste from an animal confinement area;
  - passing the animal waste to a holding tank;
  - mixing an alkaline composition with the animal waste in the holding tank to create a waste mixture;
  - removing ammonia from the holding tank;
  - transferring the waste mixture to a solids separator;
  - separating the waste mixture into solids and a liquid; and
  - after separating the solids, returning the liquid to the animal confinement area for reuse.
2. The method of claim 1 wherein mixing an alkaline composition with the animal waste comprises mixing a lime solution with a pH over 11 with the animal waste.
3. The method of claim 1 further comprising combining the ammonia from the holding tank with an acid to form fertilizer.
4. The method of claim 1 further comprising separating undigested feed from said solids for reuse.
5. The method of claim 1 further comprising filtering the liquid prior to reuse to produce potable water.

6. The method of claim 1 including maintaining the pH of the animal waste at 10 or higher within the holding tank for a selected time period.

7. The method of claim 6 including maintaining the pH of the animal waste at 11 or higher within the holding tank for a selected time period.

8. The method of claim 6 including neutralizing the animal waste after the animal waste has been maintained at a pH of 10 or higher for the selective time period.

9. The method of claim 1 including holding the waste mixture in the holding tank and breaking down the urea and solid fecal matter.

10. The method of claim 1 including returning at least a portion of the liquid separated from the waste mixture to the animal confinement area and utilizing the portion of liquid to flush animal waste from the animal confinement area.

11. The method of claim 10 including continuously recycling the separated liquid to the animal confinement area for flushing animal waste from the animal confinement area.

12. The method of claim 1 wherein separating the waste mixture into solids and a liquid comprises transferring the waste mixture from a holding tank to a solids separator and adding a flocculant and a coagulant to the waste mixture and wherein in the solids separator, the solids of

the waste mixture move upwardly and overflow the solids separator while the liquid is drained from the solids separator.

13. The method of claim 1 wherein the separated liquid is directed to a storage tank where the separated liquid is held and ultimately used to flush and clean the animal confinement area.

14. The method of claim 1 including directing the ammonia from the holding tank and mixing the ammonia with an acid to form a fertilizer material.

15. The method of claim 14 wherein the acid mixed with the ammonia is taken from the group including nitric acid, phosphoric acid, and sulphuric acid.

16. The method of claim 4 wherein separating undigested feed from said solids includes separating fecal and liquid matter from the solids so as to leave the undigested feed and then treating and processing the undigested feed such that the undigested feed can be fed to animals.

17. A method of treating hog waste, comprising:

mixing hog waste from a hog barn with an alkaline solution in a mixing tank to  
form a waste mixture;  
removing ammonia from the mixing tank;  
separating the waste mixture into solids and a liquid;  
separating said solids into digested and undigested feed; and  
returning a portion of said liquid to said hog barn for flushing waste from said hog barn.

18. The method of claim 17 wherein separating said solids into digested and undigested feed  
comprises screening in a rotary filter said solids.

19. The method of claim 18 further comprising screening out animal hair from said undigested  
feed.

20. The method of claim 17 further comprising utilizing said digested feed to form fertilizer.

21. The method of claim 17 further comprising utilizing said ammonia to form fertilizer.

22. The method of claim 17 wherein separating solids from the waste mixture comprises adding  
a flocculent and a coagulant to said waste mixture in a solids decanter.

23. A method of recycling hog waste, comprising:

removing solid waste from a hog confinement area;

treating said solid waste;

separating digested feed from undigested feed in the solid waste; and

creating feed stock from said undigested feed.

24. The method of claim 23 further comprising screening animal hair from said undigested feed.

25. The method of claim 23 wherein treating said solid waste comprises mixing said solid waste with an alkaline solution.

26. The method of claim 25 further comprising separating liquids from said solid waste.

27. The method of claim 23 wherein removing solid waste from the hog confinement area comprises flushing hog waste from the hog confinement area.

28. The method of claim 23 further comprising reusing water flushed from the hog confinement area to flush waste from the hog confinement area.

29. The method of claim 23 further comprising processing the digested feed into fertilizer.

30. A decanter, comprising:

a holding area for receiving a base solution of animal waste and lime;

a DAF inlet positioned in said holding area for directing water super-saturated

with compressed gas through said holding area; and

a spill path positioned near a top portion of said holding area for permitting solid waste to

spill over said spill path and to separate solid waste from liquid waste in said

holding area.